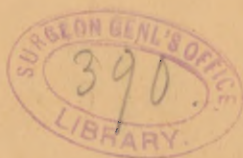


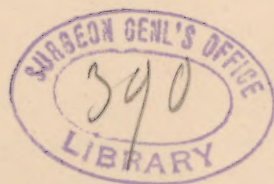
WILCOX (W. F.)

A study in vital statistics



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A STUDY IN VITAL STATISTICS.

VITAL STATISTICS may be defined as that branch of statistics which studies the population of a country, as distinct from the acts or products of the population. The term corresponds almost exactly to what the Germans call statistics of population (*Bevölkerungstatistik*) and to what some French writers call demography (*démographie*). There are two great divisions of vital statistics: one investigates the condition of the population at a certain date, and thus disregards the element of time and change; the other investigates the changes in the population between two points of time. The statistical material for the study of the first branch is contained in our censuses, state and national, which seek to give an instantaneous photograph of the population at a certain moment. Practical difficulties may keep this from being more than a purely ideal goal, like a limit in mathematics; but it is a goal that may be approximated indefinitely. Our censuses also give much aid in studying the second division of vital statistics. From a comparison of two censuses we may draw certain conclusions as to the changes that have occurred in the interim. Thus if the population has increased, we may infer with certainty that the increase from births and immigration has exceeded the decrease from deaths and emigration by the amount of the total increase. But censuses do not of themselves furnish any analysis of the changes of population, any determination as to the relative importance of the various causes at work. Hence the need for continuous records of certain important and frequently recurring changes. Such records now commonly include the number of births, immigrants, cases of sickness, deaths, emigrants, marriages and divorces. The phrase vital statistics is often used in a limited sense to denote a comparison of these changes with the total

population and with one another; it is even sometimes narrowed to a study of births, marriages and deaths. In the foregoing analysis I have sought to justify its use in the wider sense and to show that vital statistics is a distinct and clearly marked branch of statistics, if indeed it be not, as is claimed by several French writers, a separate science.

The materials for the study of vital statistics are contained in the various censuses and in periodical registration reports of some form. Our national censuses are tolerably satisfactory, but the continuous registration of important changes, except the immigration over sea, is left to the separate states and is in the main very imperfect or entirely wanting. As there is no record of overland immigration and no record of the counter-current of emigration, it is obvious that the sources for the study of vital statistics in the United States are extremely incomplete. With the exception of Spain, all the great states of Europe publish their yearly record of marriages, births and deaths. Even the imperfect statistics of Russia are in this respect superior to those of the United States. Six years ago the national government, to meet a pressing practical need for information, entered this field so far as to collect and publish the existing statistics of marriages and divorces for the preceding score of years.¹ The result of the investigation of marriages, the compiler himself declared,

is thoroughly incomplete and unsatisfactory. Very few states have any registration system by which marriages are recorded. . . . In some the work of compilation at the central office is so carelessly and inaccurately done as to detract greatly from their value. . . . Twenty-one states provide for returns to some state officer of marriages celebrated. These returns as a rule, however, give but few facts relative to the persons married, and the facts that are given are not identical and are compiled so carelessly as to be nearly worthless.²

¹ A Report on Marriage and Divorce in the United States, 1867 to 1886; by Carroll D. Wright, Commissioner of Labor. Washington, 1889.

² Report, pp. 18, 19.

In a recent examination of the volume¹ I sought to analyze and interpret its figures so far as they relate to divorce. The object of the present paper is to set forth some results of my further study in the field of vital statistics as above defined. The sources are so fragmentary as to prevent any attempt at presentation of the conclusions in systematic form. Since our judicial statistics of divorce are much better taken and preserved than our civil statistics of births, marriages and deaths, for a long time to come the former must occupy a disproportionately large place in any treatment of the vital statistics of the United States.

For any detailed study of vital statistics it is important to know the population for each year, in order to compare the number of births, deaths, marriages or divorces with the whole number of people. As this population is ascertained only once in ten years, or in some few states once in five years, the population for the intermediate years must be found indirectly. The method of assuming that in each year of the interval the population changed by the same amount, one-fifth or one-tenth of the change observed in the five or the ten years between censuses, is the most simple and obvious one, and while not entirely accurate, it is sufficiently so for the purposes of this article. By this method the population of the country or of any state, county or city may be found for any year between 1870 and 1890. But we cannot suppose that this method will give even approximately accurate results between 1860 and 1870, because the rate of increase during the Civil War cannot have been as great as it was just after its close. Five states, Massachusetts, Rhode Island, New York, Iowa and Kansas, took a state census in 1865; and Michigan took one in 1864, from which the population of that state in 1865 may be estimated. These six states, embracing in 1860 over one-fifth of the population of the country, increased in five years, 1860-65, from 6,817,653 to 7,035,740, or only 3.2 per cent. At first thought it might seem fairest to apply this ratio to

¹ The Divorce Problem. Columbia College Studies in History, Economics and Public Law, No. 1. New York, 1891.

the whole country and compute the population of the United States in 1865 by assuming it to have been 3.2 per cent greater than the population in 1860. But it is to be observed that the last three of these states were growing with great rapidity through the decade, so that the total population of the six states increased, 1860-70, 29.1 per cent, while the increase of the whole country was only 22.7 per cent. On the other hand the population of the three eastern states slightly decreased, 1860-65, from 5,286,421 to 5,279,814. Hence it seems fairest to assume that the growth in the western states was neutralized by the loss of population in the southern and border states, and that the population of the country as a whole was the same in 1865 as in 1860. On this assumption the population for each year 1865-70 may be estimated in the same manner as for subsequent years.

After finding the total population for any year, the birth rate, death rate, marriage rate or divorce rate for that year may be computed in case the total number of births, deaths, marriages or divorces for that year is given by a registration report or otherwise. This is done by dividing the number of births, deaths, marriages or divorces for the year by the population for the year and multiplying the decimal thus obtained by 100, 1000 or 100,000. The result obviously expresses the number of births, deaths, marriages or divorces in each 100, 1000 or 100,000 of the population, provided that these changes are distributed with entire uniformity, an assumption never more than approximately correct. The advantage derived from such a computation is that it makes unnecessary further consideration of differences in population. It thus renders easy a comparison of the amount of marriage or divorce in communities or states widely different in their populousness, as well as within the same community or state for different years. In the following pages the number 1000 has been uniformly employed as the basis of the rates except for divorce, where, in order to avoid decimals, 100,000 has been substituted. In some cases the graphic method of presenting results or illustrating relations has been used, as easier of apprehension than columns of figures.

Marriage Statistics.

Only in five states, Vermont, Massachusetts, Rhode Island, Connecticut and Ohio, and in the District of Columbia, can the number of marriages be obtained with approximate completeness for each one of the twenty years.¹ To these may be added Illinois, where the records since the Chicago fire are apparently complete. Any results that may be obtained from an examination of these states or parts of them are hardly to be regarded as applicable south of the Ohio or west of the Mississippi, where the conditions are widely different.

How does the marriage rate in these states compare with the rate in European countries? The following table gives the number of persons marrying to every thousand of population in several European countries² and in these states for the year 1876, the mean of the twenty-year period.

Marriage Rates in 1876.

Hungary	19.8	District of Columbia .	20.0
German Empire . .	17.0	Rhode Island	17.8
England and Wales .	16.6	Ohio	17.5
Austria	16.2	Illinois	17.1
Italy	16.2	Vermont	15.9
France	15.8	Massachusetts	15.4
Scotland	15.0	Connecticut	13.2
Ireland	10.0		

Although no trustworthy conclusions in detail can be drawn from a single year, and although the pressure of the hard times in 1876 was probably somewhat more influential in the United States than in Europe in lowering the marriage rate, yet the general conclusion I believe to be warranted, that in the north-eastern and north-central states the average marriage rate is only slightly higher than the average rate in Europe; and that if we except Ireland on the one side, and Connecticut on the

¹ Report, p. 129.

² The figures for the European states are derived from the appendix to von Ottingen's *Moralstatistik*, third edition, pp. i-iv.

other, as either abnormal or imperfectly reported, the variations from this average rate are not very much wider on one side of the Atlantic than they are on the other.

Does the marriage rate in this country show any tendency to change? In most European countries the marriage rate has somewhat decreased in the past twenty years. A similar falling off is apparent in those states of this country about which the facts are obtainable. The following table gives the marriage rate for the first and the last year reported and the decrease.

Decrease of the Marriage Rates of Certain States in Twenty Years.

	Marriage Rate in 1867.	Marriage Rate in 1886.	Decrease.
Vermont	17.8	15.6	2.2
Massachusetts	21.6	18.0	3.6
Rhode Island	24.4	17.6	6.8
Connecticut	19.5	15.8	3.7
District of Columbia	33.3	20.7	12.6
Ohio	23.8	16.4	7.4
Illinois ¹	23.6	17.7	5.9

As there has been some decrease in every case, it is fair to presume that the same is true of the other states adjacent to these. It might be objected that the rate in 1867 was probably increased by the celebration in that year of some marriages which would have occurred earlier had they not been postponed by the war. But a comparison of the rates in these states for each year of the twenty confirms the conclusion indicated by the table above, that there has been a general though irregular downward tendency through the twenty years.

Is the decrease of marriage more marked in the cities or in the country? It is difficult to find a clear and general answer in the figures. The state of Ohio makes no returns by counties, and hence no comparison between city and country is there possible. In Massachusetts I have selected counties containing almost no large city, and have compared their

¹ Exclusive of Cook County, containing Chicago, in which the records were destroyed in 1871.

average marriage rate with that of Suffolk County (containing Boston). In Connecticut I have compared the average marriage rate of the three counties which contained in 1890 the eight largest cities, with the average rate of the other five counties of the state.

Decrease of Marriage Rates in Urban and Rural Districts Compared.

DISTRICTS MAINLY RURAL.

	Marriage Rate in 1867.	Marriage Rate in 1886.	Decrease.
Vermont	17.8	15.6	2.2
Massachusetts (7 rural counties)	19.9	16.1	3.8
Connecticut (5 rural counties)	19.6	15.1	4.5
Illinois (outside Cook Co., 1872-86)	17.6	17.7	0

DISTRICTS MAINLY URBAN.

	Marriage Rate in 1867.	Marriage Rate in 1886.	Decrease.
Rhode Island	24.4	17.6	6.8
Massachusetts (Suffolk Co.) . .	26.7	20.6	6.1
Connecticut (3 urban counties)	19.4	16.1	3.3
Illinois (Cook Co., 1872-86) . .	31.9	23.6	8.3
District of Columbia	33.3	20.7	12.6

As Vermont contains no city with a population of 15,000 or over, the whole state has been treated as a rural district. In Rhode Island 77 per cent, and in the District of Columbia 83 per cent, of the population were classed as urban by the census of 1880; accordingly both are treated as urban in the table. The general result of this comparison is to indicate that the decrease in the marriage rate has been somewhat greater in cities than in the country. The exception in the case of Connecticut may be due to the imperfect registration of marriages in that state, and to the fact that omissions have been more numerous in the urban counties. The rural rate is about normal, while the urban rate is very low.

Is any change occurring in the average age at which marriage is contracted? No suggestion of an answer to this question has been found except in Massachusetts, where the average age of the parties is reported. As the main significance

attaches to the age at which people enter upon marriage, I give here only the average age of those who married for the first time.

Average Age of Marriage in Massachusetts.

	1871.	1890.	Increase.
Bachelor grooms	26.3	27.2	.9
Maiden brides	23.5	24.3	.8

Does a study of the marriage rates reveal any causes of the changes that have occurred? Such a study is more readily made by the aid of a diagram than from a column of figures. As we have reports of the marriages in Massachusetts for a long period of time and as that state is fairly typical of the part of the country to which our study is confined, I present here a diagram of the marriage rates in that state for the past forty years.¹

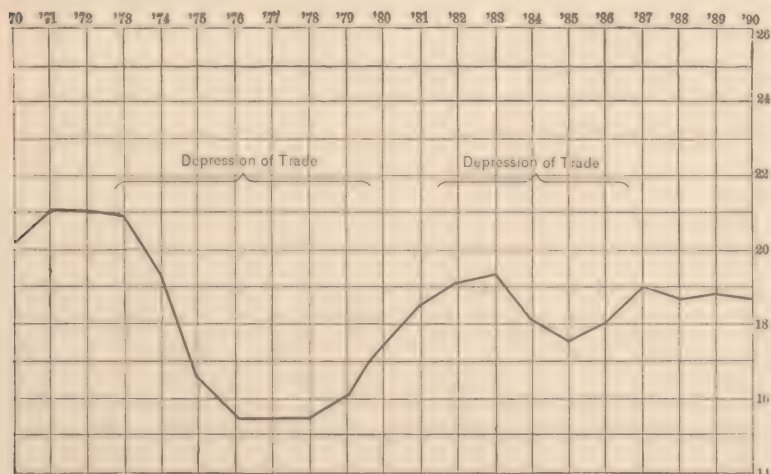


This diagram shows clearly the influence of the Civil War and of the three depressions of trade and industry in discouraging marriage. At the same time it illustrates the general downward tendency of the rate. Somewhat similar but less marked fluctuations are shown in Rhode Island and Connecticut for the period since the war. On the other hand, in the

¹ Compiled from Mass. Registration Report, 1889, p. 272 ; 1890, p. 245.

predominantly agricultural state of Vermont there is almost no trace of any influence of the depression of trade. This suggests that the hard times discouraged marriage more powerfully in commercial centers than in rural districts; and the inference is confirmed by a comparison of city and country rates in Massachusetts and Illinois. In the three years, 1873-76, the Suffolk County rate fell off 7.8, while the average rural county rate fell only 3.1. The Cook County rate fell, 1873-76, no less than 14.7, while in the rest of Illinois the fall in those years was only .7. In all these cases the influence of the hard times would be shown even more clearly if only first marriages were included. The marriage of bachelors is a much more sensitive barometer of the economic condition and hopes of a community than the whole number of marriages. With economic distress the proportion of marriages by bachelors sinks and that of

IN MASSACHUSETTS.



marriages by widowers rises. Thus in Massachusetts, in the three years, 1873-76, the number of bachelors marrying fell off 24 per cent, but that of widowers remarrying decreased only 11 per cent.

Divorce Statistics.

As before stated, the divorce rates given in this article represent the average number of persons divorced (not the

number of divorces) to every 100,000 of the population. Since the marriage rates give the average number of persons marrying, and not the number of marriages, to every 1000 of the population, it is obvious that the frequency of marriage and of divorce may be readily compared by moving the decimal point in the divorce rate two places to the left.

How does the divorce rate in the United States as a whole compare with the rate in other countries? The following table¹ will give an approximate answer to the question. As the number of divorces is quite generally increasing in Europe and this country, I have chosen the year 1886 instead of 1876 for comparison. Where no date is given, 1886 should be understood.

Divorce Rates (including Separation) in Various Countries.

Ireland28	German Empire . . .	25.97
Italy (1885)	3.75	France	32.51
England and Wales . .	3.79	Switzerland	64.49
Canada	4.81	United States	88.71
Australia (including New Zealand and Tasmania)	11.14	Japan ²	608.45

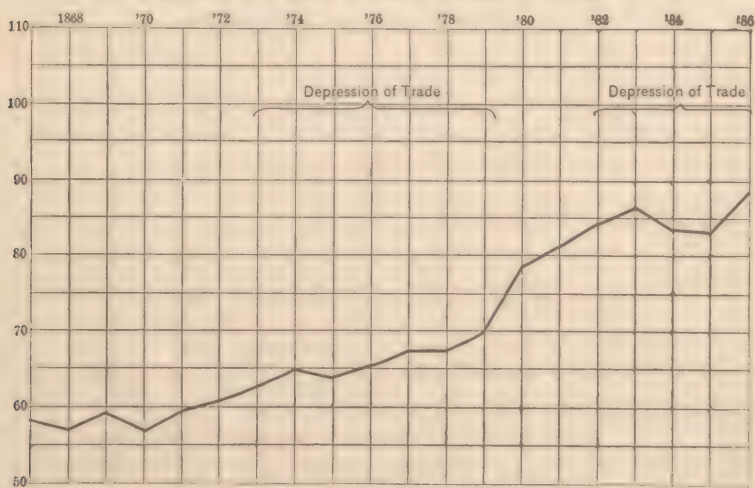
The divorce rate of Japan is especially interesting, since I believe Japan is the only non-Christian country that collects and publishes its vital statistics. Whether it is even approximately a fair type of other non-Christian countries or whether its high rate is due to local and exceptional conditions, I am unable to state. In the year 1886 there were in Japan 315,311 marriages and 117,964 divorces, more than one divorce to every three marriages and more than four and a half times as many divorces as there were in the United States, although the population of Japan was only about two-thirds as great. But among the professedly Christian countries the United States has the largest divorce rate.

¹ The data from which these rates have been computed for European countries are mainly found in the valuable appendix to the Report on Marriage and Divorce. Those for Australia have been kindly furnished me by T. A. Cogan, government statistician of New South Wales.

² *Résumé Statistique de l'Empire du Japon* (Tokio, 1891), pp. 10, 17.

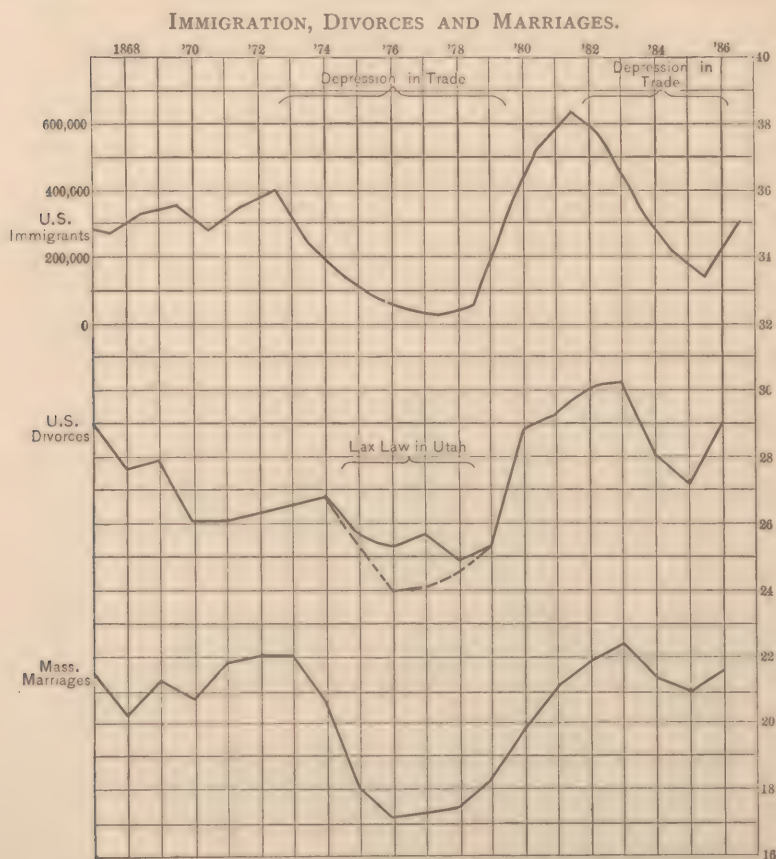
What change, if any, is taking place in our divorce rate? This question may be most intelligibly answered by the following diagram expressing the divorce rate of the United States for each of the twenty years, 1867-86, in the form of a curve, or more accurately, a broken line. The amount of divorce to every 100,000 of the population for each year is indicated by the distance from the bottom of the diagram to the broken line, and the prevailing upward tendency of the line expresses the gradual rise in the divorce rate. In only five of the nineteen cases does the line descend. This shows that in only five years was the rate lower than it had been the year before, while in fourteen cases there was an increase. And the average annual decrease in these five years was markedly less than the average annual increase in the fourteen years.

DIVORCE RATES IN THE UNITED STATES.



May any causes influencing the divorce rate be determined from the figures? A study of the rates for the years of commercial depression will show that the increase of divorce in those years was checked or turned into a decrease. To show how closely the divorce curve of the United States and the marriage curve of Massachusetts correspond, they should be placed side by side. But even then the similarity

of the two curves in details is obscured by the fundamental difference that the general trend of the marriage curve is downward and that of the divorce curve upward. For purposes of comparison this difference may be eliminated on the assumption that the complex forces tending to decrease marriage and the complex forces tending to increase divorce were uniform in their action throughout the twenty years. The effect of applying such an assumption is practically so to change the curves that the ends of each shall lie in the same



horizontal line, while the variations from year to year are but little affected. The above diagram presents to the eye the curves thus altered. For confirmation the curve of immigra-

tion to the United States, also changed from an ascending to a horizontal curve, has been added to the others. As the year for which the immigration is reported ends June 30th, the angles in the immigration curve have been placed midway between the years.

In the divorce curve it will be seen that two rates are given for each of the four years 1875-78. An explanation of this will be offered later. Suffice it to say at present that between 1874 and 1876 the decrease of the divorce rate would probably have been greater than is indicated by the unbroken line, had it not been for the number of divorces granted in Utah in those years under a lax local law, and that the limit of decrease without that law has been found and is indicated by the dotted line. But for the Utah divorces it is practically certain that the divorce curve of the country for those years would have lain somewhere between the two limits, one expressing the divorce rate actually found and the other what that rate would have been had no divorces been granted in Utah to parties residing at a distance, *i. e.* in a non-adjacent state or territory.

The general similarity of the three curves is so marked that one is almost compelled to admit that in large measure they are influenced or controlled by the same forces. Especially clear is the great influence of the depression in trade from 1873 to 1879 and the slighter depression from 1882 to 1886. The relation between the United States divorce curve and the Massachusetts marriage curve is quite remarkable. From 1870 to 1871 the adjusted marriage curve rose while the divorce curve fell slightly. The influence of the panic of 1873 was felt the following year in diminishing the number of marriages in Massachusetts, but not till 1875 was it shown in the divorce rate. It should be remembered, however, that a divorce speaks from the date of the decree and not from the date the suit is begun. The decrease of decrees entered in 1875, therefore, would very probably correspond to a decrease of suits begun in 1874. The adjusted divorce curve fell between 1877 and 1878 while the marriage curve rose. This may be explained

by the repeal of the lax Utah law in February, 1878. With these three exceptions, two of which, I believe, are only apparent, the two curves uniformly ascend and descend together and reach their maxima and minima in the same years. The inference is irresistible. Depressions in trade have had a tendency to decrease divorces as well as marriages. In the great mass of the population they have discouraged change, have compelled men and women "in whatsoever state they were, therewith to be content," or at least to abandon or postpone the idea of change.

This influence of commercial depressions on the divorce rate has never before been suggested, so far as I am aware. It is, indeed, somewhat doubtful whether it exists in European countries. In England, at least, in the years in which the number of marriages has been diminished by hard times, the number of divorces has not fallen off, but rather increased. In 1879 and 1885 the divorce rate in England and Wales was higher than for any one of the other eighteen years, while in these two years and in 1886 the three lowest marriage rates of the period were presented. The expense and delay involved in procuring a divorce there are so great that only somewhat wealthy persons can go into court, and they do not feel so severely the burden of a financial crisis. This conjectural explanation derives some support from the fact which a French statistician of eminence¹ claims to have proved, that such periods of distress in Great Britain, while checking marriage among the poor, are attended by an increase of marriage among the rich. This difference between the effect of hard times in England and in the United States, together with the very rapid increase of divorce among the Southern negroes, and the fact that only about one wife in six of those obtaining divorces receives any alimony, are among the indications that divorce has become very frequent and perhaps most frequent among our lower middle classes, and has reached for weal or woe a lower stratum than perhaps anywhere in Europe.

¹ See *Dictionnaire Encyclopédique des Sciences Médicales*, article "Grande Bretagne," by Dr. L. A. Bertillon, § 32.

Is divorce more common in cities or in the country? To this question an unhesitating answer may be made. Almost everywhere in this country the divorce rate of a large city is higher than the rate in the neighboring rural districts. The evidence of this statement may be most conveniently presented in connection with the discussion of the following topic.

Is the difference between city and country divorce rates increasing or decreasing? In the study of this question I have selected the following states, either as containing large cities or as fairly typical of the part of the country in which they lie: Massachusetts, New York, Pennsylvania, Georgia, Ohio, Illinois, Missouri and California. As the Cincinnati records have been lost, Cleveland, the second city of Ohio, has been compared with the rest of the state. It would be natural to choose New Orleans for the typical Southern city, but the Louisiana records are very imperfect, and hence I have selected Georgia, where the records seem to be excellent. In default of any single large city in that state, the average rate for the five counties in which are situated Atlanta, Augusta, Columbus, Macon and Savannah, its five largest cities, is compared with the average rate of the other counties. In New York State, the counties of New York and King's are treated as a single population center, whose average divorce rate is compared with the rate outside. So in Pennsylvania, the average rate of Philadelphia and Allegheny Counties, the latter including the cities of Pittsburg and Allegheny, has been compared with that of the rest of the state, and in Massachusetts the rate of Suffolk County, containing Boston, has been compared with the average rate of eight counties containing almost no large city. The results of the comparison are stated in tabular form on the next page. A minus sign prefixed to a number in the column headed "increase," indicates that the number should be read as a decrease. The Massachusetts rates cannot be compared with those of the other states, because in the former the base is different and more accurate, *viz.*, 10,000 married couples rather than 100,000 people.

Increase of Divorce Rates in City and Country in Twenty Years.

STATE.	City Divorce Rates.		Country Divorce Rates.		Increase in Cities in Twenty Years.	Increase in the Country in Twenty Years.
	1867.	1886.	1867.	1886.		
Massachusetts	34.4	42.3	16.7	29.6	7.9	12.9
New York . .	59.8	35.6	29.3	35.8	—24.2	6.5
Pennsylvania .	29.0	57.4	39.1	43.3	28.4	4.2
Ohio . . .	132.5	164.1 ²	78.2	99.1	31.6	20.9
Illinois . . .	255.6 ¹	182.8	109.7	134.7	—72.8	25.0
Georgia . . .	29.5	64.1	22.2	34.1	34.6	11.9
Missouri . .	87.9	134.7	45.0	91.1	46.8	46.1
California . .	112.9	288.8	79.9	154.5	175.9	74.6

Of course no conclusions can be drawn from only two years unless they are fair examples of the general trend. So in each case the rate has been computed for every year of the twenty, and it is believed that the foregoing are trustworthy indications of the variations that have occurred in the interim. The table shows that in Pennsylvania, Ohio, Georgia and California the increase of divorce has been more rapid in city than in country; that in Missouri the rate of increase has been practically the same in the two regions; while in Massachusetts, New York and Illinois the increase has been more rapid in the country. It is noteworthy that New York, Brooklyn and Chicago have shown a marked decrease of divorce rate in twenty years, the rate in Chicago in 1886 being not very much higher than in Cleveland and much lower than in San Francisco.

The table also shows how generally the city rate is higher than the country rate. In only two of the sixteen instances does the city rate fall below that of the rural districts, and if we extend our observation over the twenty years for each of these eight states, it appears that in only nine of the one

¹ This is for 1872, as no earlier record is extant.

² This is for 1885, since the rate in 1886 was abnormally and inexplicably low, lower than for any other year of the twenty, so that I am forced to doubt the completeness of the record.

hundred and sixty instances does the city rate fall below the country rate. If these be accepted as fair types of the country at large, we may say that in about ninety-five per cent of the cases the divorce rate of a large city is greater than that in the other counties of the state.

To what extent can legislation be shown to have influenced the divorce rate? In the recent study of the divorce question already cited I examined the evidence offered by Mr. Wright¹ to show that legislation had influenced the divorce rate in fourteen states and territories and came to the conclusion that the evidence was insufficient to prove a marked influence of legislation in the majority of these cases. In five the evidence failed when tested; in five others the influence appeared on scrutiny to be slight or temporary; in two the evidence could not be analyzed in detail; so that in only two was the influence of law clear and considerable. In the light of some press criticisms and of newly discovered evidence, this conclusion requires some modification in respect to Utah and Massachusetts.

Utah. This territory formerly had a very lax divorce law, allowing decrees to issue to persons who merely declared an intention to become residents and alleged incompatibility of temper as a ground. The rapidity, secrecy and cheapness with which a divorce decree of seeming validity could be obtained by non-residents led to the flooding of the Utah courts in some five counties with cases sent thither by lawyers doing business in Eastern cities. In 1878 the law was amended and the number of divorces in the territory fell from 914 in 1877 to 122 in 1879. This seemed to indicate that the amended legislation had reduced the annual number for the whole United States by about 800. My reason for questioning that conclusion, however, was that coincident with the increase of divorce in Utah in 1875, there was a decrease in Chicago and New York, from which cities most of the Utah cases were sent; and coincident with the repeal of the Utah law there was an increase in the number of

¹ Report, pp. 150-157.

divorces in those cities. Add to this the fact that both New York State and Illinois, outside the largest cities, showed a steady increase during the years of numerous Utah divorces, and the evidence seemed convincing that we had to do with a deflection of the divorce current rather than with a decrease of its volume.¹

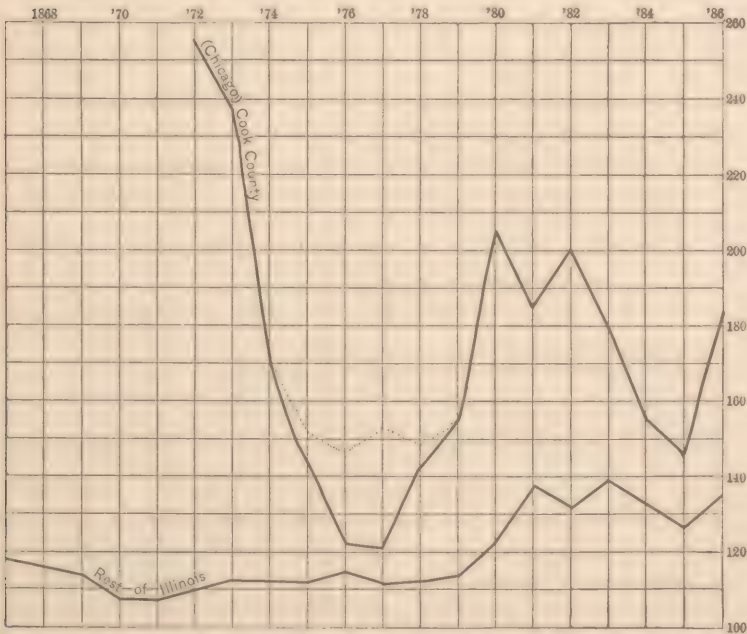
At that time I was ignorant of the influence of hard times in checking divorce—a fact discovered by subsequent study—and ignorant also, of course, that this influence is more potent in large centers than in rural districts. These two discoveries throw new light on the question. The decrease of the divorce rate in New York City and Chicago after 1874 may be due either to the hard times or to the sending of divorce cases to Utah; the increase of the divorce rate after 1878 may be due either to the repeal of the Utah law or to the revival of business. I am disposed to believe that both influences were at work, but that the depression of business and the reduction of wages were far more influential than the deflection of the divorce current to the Western territory.

Mr. Wright has kindly furnished me with an unpublished statement of the places in which the parties divorced in Utah were married. Twice as many were married in New York as

¹ It should be noticed that these Utah decrees have in several instances come before the courts outside that territory for construction, and in accordance with a well-settled principle of law, have been uniformly held null and void for want of jurisdiction over the parties. For example, a physician living in Minnesota obtained a divorce in Utah in 1876, and in the belief that he was thereby released from the ties of his former marriage, a belief confirmed, as he averred, by competent legal advice, he speedily married again. A year later he was indicted for polygamy. On the trial the Utah decree was refused admission as evidence, the court holding that he must be presumed to have known the law and to have been aware that a decree issuing from a court without jurisdiction was invalid, and he was found guilty. He was sentenced to the state prison for two years, and on appeal to the supreme court of Minnesota the judgment and sentence were unanimously affirmed. *State vs. Armington*, 25 Minn. 29. Similar decisions involving these Utah decrees have been reached on criminal trials in New York, Indiana and Iowa, and in civil suits in Massachusetts, Kansas and Tennessee. The earliest, I believe, of these decisions was reached in 1877, so that they could hardly have exerted much influence in reducing the number of applications before the law was changed a year later.

in any other state of the Union. This may be plausibly explained as due in great measure to the stringency of the New York law, which allows divorce only for one cause. Hence there would be in this state a great number of deserted or cruelly-treated husbands or wives, in addition to those merely discontented with their choice, and many of these might be allured by the advertisements of the divorce lawyers. The second state on the list was Illinois. As its divorce law is lax, a majority of those residing there and seeking divorce in Utah might have obtained a divorce under Illinois law, though less readily, secretly or cheaply. For the purposes of illustration assume that all the divorces of parties married in Illinois and

CITY AND COUNTY (ILLINOIS) DIVORCE RATES.



divorced in Utah were granted to residents of Chicago; or, what amounts to the same thing, assume that the number of such divorces to persons not residing in Chicago was equal to the number granted to residents of Chicago who had been married outside of Illinois. Assume also that if all these divorces had not been granted in Utah they would have been granted in the

local court. On these assumptions the divorce curves of Cook County and of the rest of the state may be constructed both as they actually were and as they would have been had the Utah divorces of parties married in Illinois all been granted in Cook County. These curves are shown by the preceding diagram.

Note the very rapid decrease of the divorce rate in Chicago from 1872 to 1876, probably due in large measure to industrial depression. Note that this decrease is confined to the city and does not appear in the rest of the state. Note also the influence of the possible diversion of divorces to Utah in accentuating that decrease. It is probable that some but not all of the divorces of Illinois marriages granted in Utah would have been obtained in Cook County if the cases had not been sent west. If this is so, the true divorce curve of Cook County, as it would have been but for the advantage taken of the Utah law, would be somewhere between the unbroken line, indicating the curve of the actual divorce rate, and the dotted line, indicating the rate found by adding to the divorces granted in Chicago in each year the divorces granted that year in Utah to parties married in Illinois. Attention may also be called to another inference from the diagram, that the divorce rate in Chicago has decreased since the fire, while the rate in the rest of Illinois has somewhat risen.

Massachusetts. In this state there was a noticeable increase of divorce between 1872 and 1874, which Mr. Wright stated¹ was probably due to a change of law in 1873, whereby the period of desertion necessary to give ground for divorce was reduced from five to three years. To this opinion I objected that such a change could have increased only the number of divorces for desertion, whereas in fact the increase of divorces granted on other grounds in the two years had been relatively much greater—92 per cent as compared with 69 per cent. Hence some other reason for the increase must be sought. In an able and suggestive criticism of my discussion² Dr. Dike says:

¹ Report, p. 154.

² Legislation and Divorce, *N. Y. Evening Post*, July 2, 1891. I am much indebted to this letter; not so much, however, for any new facts it brought out as for the stimulus it gave me to reopen the question of the influence of legislation on divorce.

Mr. Wright apparently overlooked in his statements of the influence of legislation in Massachusetts—what he had shown in his state report of 1880—the fact that four new grounds of divorce created in 1870 first affected the statistics in 1874 and made most of the increase of 92 per cent.

Here is a new cause suggested for the increase—a change of law, but one of more sweeping character than that of 1873. Yet I must insist upon the position previously taken, that no causal relation can be established by observing an effect and merely pointing out an antecedent phenomenon that may account for it. Not only must the cause and effect occur together, but when the cause is absent the effect must likewise disappear. Neglect of this principle seems to me a fundamental error underlying much of Mr. Wright's discussion of the influence of legislation on divorce, and the same oversight occurs in Dr. Dike's reply. Dr. Dike gives a valid answer to my argument, but not, I think, to my conclusion. He shows that a sweeping change of law and an increase of divorces coincided in Massachusetts. But he does not consider the movement of the divorce rate at the same time in the adjacent states beyond the reach of this change of law. As a matter of fact, in every one of the eight other states from Maine to Pennsylvania inclusive, as well as in Massachusetts, the divorce rate increased from 1872 to 1874. Hence the increase in the latter state cannot be set down as due solely to the local change of law. The following table will present the facts concisely.

Increase of Divorce in North Atlantic States, 1872-1874.

	Divorce Rate in 1872.	Divorce Rate in 1874.	Increase.
Maine	133	147	14
New Hampshire	123	170	47
Vermont	92	110	18
Rhode Island	194	199	5
Connecticut	162	186	24
Massachusetts	44	76	32
New York	26	31	5
New Jersey	18	22	4
Pennsylvania	33	37	4

From this table it appears that the increase in Massachusetts, where there was a special local cause at work, is not conspicuously greater than the increase in three of the five adjacent states, New Hampshire, Vermont and Connecticut, where no local cause is alleged. On the basis of these figures it seems to me impossible to maintain that the increase in Massachusetts was certainly or even very probably due to the local cause, unless we are able to discover what general influence caused the increase in the other states, and to show that this was not present or worked less powerfully in Massachusetts. If any quantitative estimate of the influence of the change of law in Massachusetts is to be derived from the figures, it may perhaps be done most fairly by the following method. The other five states of New England have together a population about equal to that of Massachusetts, and exhibit a general similarity to that state in social and economic conditions. Comparing them as a unit with Massachusetts for the two years under consideration, we find that they showed an increase of 25 in their average divorce rate, while that of Massachusetts increased 32. This excess of seven may be a rough approximate indication of the increase in Massachusetts due to the local cause.

May the amount of interstate migration for the purpose of securing divorce be approximately estimated? One of the main services that statistics can render to social science is to make possible a quantitative measurement of facts that without statistics can be only qualitatively distinguished. This must be my excuse for suggesting for the quantitative determination of the current of interstate migration to secure divorce, a method which is admitted to be imperfect and to give only roughly approximate results, but which is believed to be correct in theory and the best method possible with our limited data. Only two illustrations will be given, since these will suffice to illustrate the method, and that is all that is here desired.

It is often said that natives of New York, where the law is strict, resort to Rhode Island to obtain divorces.¹ In

¹ "Our statute . . . is so much more favorable to easy divorce that instances are not rare of persons coming to the state and remaining the time required to

1870 there were 1,073,572 natives of New York State living in other parts of the Union, and of these 3932 were living in Rhode Island. That is, of all the natives of New York State who in 1870 were living beyond the limits of the state but within the limits of the country, .36 per cent resided in Rhode Island. The migration of the natives of New York to other parts of the Union may be conceived as a movement due to the attractive force exerted upon them by the advantages offered or believed to exist elsewhere; and the proportion of these persons going to any particular state or territory may be conceived to measure the attractive force of that state or territory in terms of the total force. The attractive force of Rhode Island for natives of New York in 1870 was, then, .36 per cent of the attractive force of the whole country outside of New York. In 1880 .54 per cent of the natives of New York residing without that state and within the country were living in Rhode Island, or in other words the attractive force of Rhode Island had risen to .54 per cent of that of the whole country. Now let us compare with these figures the number of persons going to Rhode Island from New York to obtain divorce. The number for each year is not given, but we are told¹ that in the twenty years ninety-seven divorces were granted in Rhode Island to parties who had been married in New York. We know also² that in the whole country outside of New York in the twenty years 9,205 divorces were granted to parties who had been married in New York State. That is, of all the divorces of New York marriages granted outside of that state, 1.05 per cent were granted in Rhode Island. Now if what we may call the current of legitimate migration from New York to Rhode Island was somewhere between .36 per cent and .54 per cent of the current from New York to the whole

obtain standing in our courts." — Governor's Message for 1883. Again: "I trust that our laws will be so amended that at least Rhode Island may no longer have the unenviable reputation it now has in respect to divorce and may no longer be a resort from neighboring states of parties who cannot be divorced by the laws of their own state." — Message for 1884.

¹ Commissioner Wright's Report, p. 194.

² *Ibid.*, p. 196.

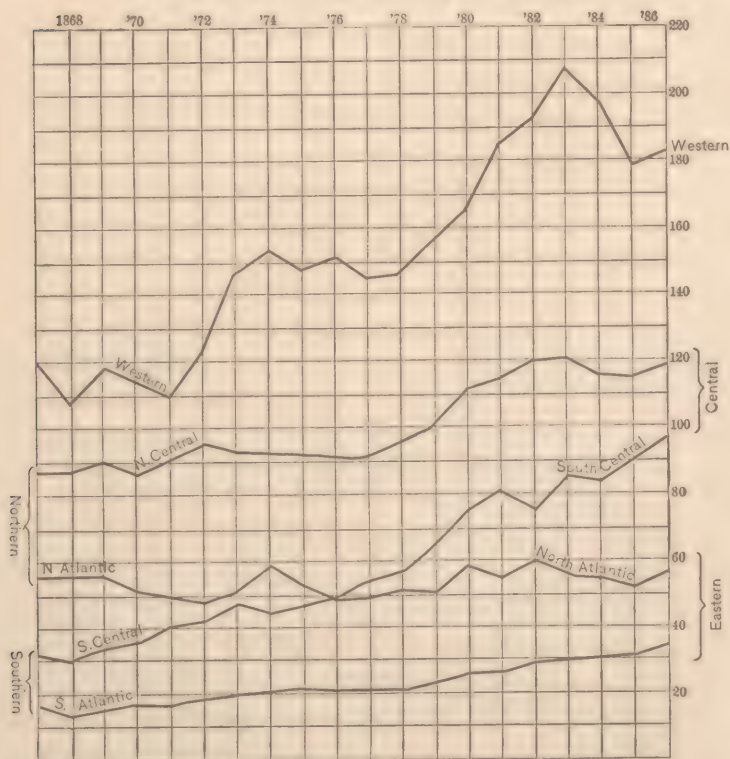
country, and if the current of divorce migration to Rhode Island was about 1.05 per cent, the difference between these two may be held to express the amount of migration guided by the desire to obtain divorce. In a general way this analysis would indicate that from thirty-five to fifty of the ninety-seven cases in which Rhode Island divorces were granted to parties married in New York were cases of *bona fide* migration, in which divorce merely followed change of residence, without serving as a motive for it. While in any single instance like the foregoing such a course of reasoning may result in erroneous conclusions, I firmly believe that in the great majority of cases it would give an approximation to the truth and be far better than ignorance. It is an amplification and, as I think, an improvement of the method followed by Mr. Wright.

The application of this method may be made to another instance in which the data have been published. New York citizens are said to move to Pennsylvania in order to obtain divorce. How largely is this true? The attractive force of Pennsylvania on natives of New York, as measured by the number residing in the former state, was in 1870 8.2 per cent and in 1880 8.3 per cent of the force exerted by the whole country. On the average during the twenty years the attractive force of Pennsylvania on persons married in New York and obtaining a divorce elsewhere was 8.6 per cent. If the difference roughly expressed the migration for the purpose of obtaining a divorce, we may say that probably at least 700 of the 765 persons who were married in New York and divorced in Pennsylvania went there with the motives of ordinary immigrants and not to secure divorce.

Is it possible to trace a geographical distribution of divorce? In the population bulletins of the United States census the country is divided into five groups. The lines of separation are partly geographical and partly social and economic. Two lines are geographical, following approximately the two great mountain systems and dividing the country into an eastern, a central and a western group of states. The third line is social

and economic, marking the difference between the former slave states and the free states. Each of the five groups of states thus formed, the north Atlantic, the south Atlantic, the north central, the south central and the western, is treated for many purposes as a whole and as such compared with the others. This method may be profitably employed in studying the divorce statistics. Accordingly I have estimated the population of each group, found the number of divorces granted in it for each of the twenty years, and computed the average divorce rate. The result is most clearly set forth in the following diagram.

DIVORCE RATES IN GROUPS OF STATES.



From this diagram it will be seen that the states from Delaware to Florida have uniformly had the lowest divorce rate in the country. At the start the second group in freedom

from divorce was the southern states of the Mississippi valley. But the rate in that group has increased very rapidly, passing the north Atlantic group in 1876 and rapidly gaining on the north central, while for the last two years shown its rate was higher than that for the country as a whole.¹

The north Atlantic group of states, from Maine to Pennsylvania inclusive, shows no increase of divorce rate in the twenty years; in other words the growth of divorce has just kept pace with the growth of population. If we divide this region into two groups, we find that in New England the divorce rate has slightly decreased in twenty years, while in New York, New Jersey and Pennsylvania as a whole it has slightly increased, the two offsetting each other.

Perhaps the most striking fact illustrated by the diagram is the high divorce rate and its rapid increase in the western group of states. At the beginning of the period the two southern groups were most free from divorce, then came the two northern groups, while the western group had the highest rate; but for the last eleven years the two eastern groups were most free from divorce, then came the two central groups and finally the western group. Disregarding for a moment the western group, we may say that for the period 1867-75 inclusive the difference between south and north was greater than that between east and center; but for the period 1876-86 inclusive the reverse was true, and the average difference between east and center was greater than the average difference between south and north. In the single matter of divorce rate the differences between south and north have been dwindling since the war, while the differences between east, center and west have been very rapidly increasing. Perhaps this change may be most clearly brought before the eye by combining the four groups east of the Rocky Mountains, first into two groups of southern and northern states and then into two groups of eastern and western states, for the first and the last years of the period, marking the increase in each case and the differences between south and

¹ Compare diagram, p. 79.

north and between east and west at the beginning and end of the period.

Comparison of Divorce Rates.

	Southern States.	Northern States.	Difference.
1867	24	71	47
1886	68	92	24
	<hr/>	<hr/>	
Increase	44	21	

	Eastern States.	Central States.	Difference.
1867	43	65	22
1886	49	113	64
	<hr/>	<hr/>	
Increase	6	48	

It thus appears that the difference between south and north has decreased nearly one-half in twenty years, *i.e.* from 47 to 24, while the difference between the eastern and the central states has nearly trebled, from 22 to 64. Or if we look at the changes in the rate rather than at the differences, the increase in the south has been more than twice as rapid as in the north, and that in the central states no less than eight times as rapid as in the eastern.

A general conclusion to be drawn from this is that since the war the conditions of family life in southern and northern states, so far as they find expression in the divorce rate, have been growing more similar, while the conditions at the east and at the west have been growing more diverse; in other words, that in this respect the *ante bellum* divergence between north and south has been changing into a divergence between east and west.

Can any cause be suggested for this growing difference between the divorce rates of east and west? It may be worth while to state my own hypothesis. All over the civilized world we find two great currents of migration in progress, one from the rural districts to the cities and the other from long settled districts to newly opened territory. Now it is a general fact that the divorce rate is higher where either one of these currents stops, than at its source. Thus in Europe the city divorce rate is from three to five times that of the surrounding

country, and in the United States about 95 per cent of the cases studied show the city rate to be likewise higher. So, too, in the Australian colonies, settled almost entirely from Great Britain and Ireland, and governed in such matters by English law, the divorce rate is several times as high as it is in the mother country. Each of these two streams of migration seems to involve a process of natural selection whereby the most energetic and self-reliant, and also the most discontented, dissatisfied and even criminal classes are sifted out and drawn off to the new homes. Among these the proportion of persons desiring divorce would be much greater than among those remaining behind. The prevalence of divorce in our far western states would thus be comparable to the frequent cases of lynch law in that region, both being natural though lamentable expressions of the large proportion of lawless elements in those states.

WALTER F. WILLCOX.

Dear Sir:

Cornell University.

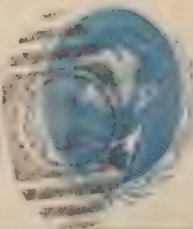
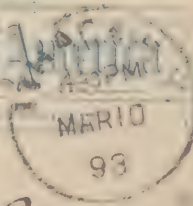
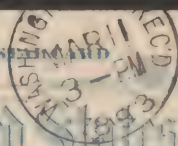
DEPARTMENT OF STATISTICS.

I take pleasure in sending you a copy of my "study in vital statistics" for the library as a slight mark of gratitude for the liberality with which the library is conducted and the aid I have derived from books lent me. I searched vainly in Boston and New York for the Dictionnaire Encyclopedique des Sciences Medicales before I found you have it. Very Truly,
W. F. Millcox

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